

REMARKS

In the Final Office Action, the Examiner rejected claims 10, 12-16, 18-22, and 24-35. By this paper, Applicants hereby amend independent claims 10, 20, and 27, and cancel dependent claims 33-35 for clarification of certain features to expedite allowance of the present application. These amendments do not add any new matter inasmuch as the subject matter previously recited by dependent claims 33-35 have simply been incorporated into independent claims 10, 20, and 27, respectively. Furthermore, Applicants contend that these amendments reduce the number of issues for appeal and, as such, respectfully request that these amendments be entered. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Rejections under 35 U.S.C. § 112, First Paragraph

In the Final Office Action, the Examiner rejected claims 10, 12-16, 18-22, 24-26, and 30 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Applicants respectfully traverse these rejections.

Legal Precedent and Guidelines

Regarding the written description requirement, the initial burden of proof regarding the sufficiency of the written description falls on the Examiner. *See In re Wertheim*, 541 F.2d 257, 263, 191 U.S.P.Q. 90, 97 (C.C.P.A. 1976); *see* M.P.E.P. § 2163.04. Accordingly, the Examiner must present evidence or reasons why persons skilled in the art would not recognize a description of the claimed subject matter in the applicant's disclosure. *Id.* 541 F.2d at 262, 191 U.S.P.Q. at 96. An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1989); M.P.E.P. § 2163.02. The Examiner should review the claims and the entire specification, including the specific embodiments, figures, and sequence listings, to understand how applicant provides support for the various features of the claimed invention. *See* M.P.E.P. §

2163, II, A, 2. The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. *See* M.P.E.P. § 2163.02. In other words, the written description requirement does not require the claims to recite the same terminology used in the disclosure. The patentee may be his own lexicographer. *Ellipse Corp. v. Ford Motor Co.*, 171 U.S.P.Q. 513 (7th Cir. 1971), *aff'd*. 613 F.2d 775 (7th Cir. 1979), *cert. denied*, 446 U.S. 939 (1980). The absence of definitions or details for well-established terms or procedures should not be the basis of a rejection under 35 U.S.C. § 112, first paragraph, for lack of adequate written description. *See* M.P.E.P. § 2163, II, A, 1. Information which is well known in the art need not be described in detail in the specification. *See Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379-80, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986); *see* M.P.E.P. § 2163, II, A, 2. By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. *See* M.P.E.P. § 2163.07(a). Moreover, any information contained in any part of the application as filed, including the specification, claims and drawings, may be added to other portions of the application without introducing new matter. Accordingly, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter. *In re Benno*, 768 F.2d 1340, 226 U.S.P.Q. 683 (Fed. Cir. 1985).

Claims 10, 12-16, 18-22, and 24-26

With respect to claims 10, 12-16, 18-22, and 24-26, the Examiner stated that the “originally filed specification does not have support for the broader term ‘inert gas’ as claimed in claims 10, 20, and 27. The specification has support for ‘nitrogen’.” *See* Final Office Action, page 2. By the present response, Applicants have amended independent claims 10, 20, and 27 to replace the term “inert gas” with the term “nitrogen.” As acknowledged by the Examiner, the specification of the present application supports the use of the term “nitrogen.” Accordingly,

Applicants respectfully request the Examiner withdraw the rejection of claims 10, 12-16, 18-22, and 24-26 under 35 U.S.C. § 112, first paragraph.

Claims 24 and 30

With respect to claim 24, the Examiner stated that the “originally filed specification does not have support for controlling the submersible actuator based on a target position, feedback, and historical data associated with the submersible actuator.” *See* Final Office Action, page 2. Similarly, with respect to claim 30, the Examiner stated that the “originally filed specification does not have support for wherein the control circuit is configured to control, [sic] the electric motor based on historical data associated with the actuation of the submarine device.” *See id.*, page 3. As such, it appears that the Examiner is of the opinion that the specification does not include support for controlling actuation based on: (1) a target position, (2) feedback, or (3) historical data. However, Applicants contend that the specification as originally filed includes support for controlling actuation based on each of: (1) a target position, (2) feedback, and (3) historical data.

For example, the specification as originally filed states that “the processing consists of calculating a speed value and direction SP for the rotation of the motor starting from the position value of the valve to be reached SETP (open/closed) and from the current position of the valve POSA and sending a corresponding signal to the pilot circuit of the motor.” *See* Application, page 11, lines 2-8 (emphasis added). Applicants contend that one skilled in the art would understand that a position value of a valve to be reached is a “target position.” In addition, the specification as originally filed clearly includes detailed discussion on “feedback” used to control the actuator. *See, e.g., id.*, page 8, line 22 – page 12, line 22; FIG. 5. Furthermore, the specification as originally filed states that “the filtered control signal SCF is obtained, having memorised a predetermined number N of prior input commands SCP from which an average MCP (average of previous commands) has been worked out.” *See id.*, page 9, lines 20-23

(emphasis added). Applicants contend that one skilled in the art would understand that a memorized predetermined number of prior input commands constitutes “historical data.”

As such, Applicants contend that the specification as originally filed includes support for controlling actuation based on each of: (1) a target position, (2) feedback, and (3) historical data. Accordingly, Applicants respectfully request the Examiner withdraw the rejections of claims 24 and 30 under 35 U.S.C. § 112, first paragraph.

Claim Rejections under 35 U.S.C. § 103

In the Final Office Action, the Examiner rejected claims 10, 12, 14, 16, 18-22, 24-27, and 29-35 under 35 U.S.C. § 103(a) as being unpatentable over Johansen et al. (U.S. Patent No. 6,595,487) in view of Dalton, Jr. (U.S. Patent No. 4,774,383), Wallace (U.S. Patent Application Publication No. 2005/0016769), and Birtcher et al. (U.S. Patent Application Publication No. 2003/0131885). In addition, the Examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Johansen in view of Dalton, Jr., Wallace, and Birtcher and further in view of Ursel et al. (WO 01/99259). The Examiner also rejected claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Johansen in view of Dalton, Jr., Wallace, and Birtcher and further in view of Schoenberg (U.S. Patent No. 5,166,677) and Andre (U.S. Patent No. 4,902,030). In addition, the Examiner rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Johansen in view of Dalton, Jr., Wallace, and Birtcher and further in view of Ursel. Applicants respectfully traverse these rejections.

Legal Precedent and Guidelines

The pending claims must be given an interpretation that is reasonable and consistent with the *specification*. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969) (emphasis added); see also *In re Morris*, 127 F.3d 1048, 1054-55, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is “the primary basis for construing the claims.” See *Phillips v. AWH Corp.*, No. 03-1269, -1286, at

13-16 (Fed. Cir. July 12, 2005) (*en banc*). One should rely *heavily* on the written description for guidance as to the meaning of the claims. *See id.*

Interpretation of the claims must also be consistent with the interpretation that *one of ordinary skill in the art* would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. “The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation.” *See Collegenet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 75 U.S.P.Q.2d 1733, 1738 (Fed. Cir. 2005) (quoting *Phillips v. AWH Corp.*, 75 U.S.P.Q.2d 1321, 1326). The Federal Circuit has made clear that derivation of a claim term must be based on “usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art.” *See id.*

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). In addressing obviousness determinations under 35 U.S.C. § 103, the Supreme Court in *KSR International Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007), reaffirmed many of its precedents relating to obviousness including its holding in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *Graham*, the Court set out an objective analysis for applying the statutory language of §103:

Under §103, the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are to be ascertained, and the level of ordinary skill in the pertinent art are to be resolved. Against this background the obviousness or non-obviousness of the subject matter is to be determined. Such secondary considerations as commercial success, long-felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. *KSR, slip op.* at 2 (citing *Graham*, 383 U.S. at 17-18).

In *KSR*, the Court also reaffirmed that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 14. In this regard, the *KSR* court stated that “it can be important to identify a

reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does ... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Id.* at 14-15. Traditionally, to establish a *prima facie* case of obviousness, the CCPA and the Federal Circuit have required that the prior art not only include all of the claimed elements, but also some teaching, suggestion, or motivation to combine the known elements in the same manner set forth in the claim at issue. *See, e.g., ASC Hospital Systems Inc. v. Montifiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (holding that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination.); *In re Mills*, 16 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 1990) (holding that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination). In *KSR*, the court noted that the demonstration of a teaching, suggestion, or motivation to combine provides a “helpful insight” in determining whether claimed subject matter is obvious. *KSR, slip op.* at 14. However, the court rejected a *rigid* application of the “TSM” test. *Id.* at 11. In this regard, the court stated:

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and explicit content of issued patents. The diversity of inventive pursuit and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. *Id.* at 15.

In other words, the *KSR* court rejected a rigid application of the TSM test which requires that a teaching, suggestion or motivation to combine elements in a particular manner must be explicitly found in the cited prior art. Instead, the *KSR* court favored a more expansive view of the sources of evidence that may be considered in determining an apparent reason to combine known elements by stating:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art all in order to determine whether there was an apparent reason to combine in the known elements in the fashion claimed in the patent at issue. *Id.* at 14.

The *KSR* court also noted that there is not necessarily an inconsistency between the idea underlying the TSM test and the *Graham* analysis, and it further stated that the broader application of the TSM test found in certain Federal Circuit decisions appears to be consistent with *Graham*. *Id.* at 17-18 (citing *DyStar Textilfarben GmbH and Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (2006) (“Our suggestion test is in actuality quite flexible and not only permits but *requires* consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs, Inc.*, 464 F.3d 1286, 1291 (2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires a teaching to combine ... “)).

Furthermore, the *KSR* court did not diminish the requirement for objective evidence of obviousness. *Id.* at 14 (“To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); *see also, In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002) (holding that the factual inquiry whether to combine references must be thorough and searching, and that it must be based on *objective evidence of record*).

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from

the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Federal Circuit has warned that the Examiner must not, “fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *In re Dembiczak*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); *see* M.P.E.P. § 2143.01(VI). If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984); *see* M.P.E.P. § 2143.01(V).

Non-analogous art cannot properly be pertinent prior art under 35 U.S.C. § 103. *In re Pagliaro*, 210 U.S.P.Q. 888, 892 (C.C.P.A. 1981). For the teachings of a reference to be prior art under 35 U.S.C. § 103, there must be some basis for concluding that the reference would have been considered by one skilled in the particular art working on the particular problem with which the invention pertains. *In re Horne*, 203 U.S.P.Q. 969, 971 (C.C.P.A. 1979). The determination of whether a reference is from a non-analogous art is set forth in a two-step test given in *Union Carbide Corp. v. American Can Co.*, 724 F.2d 1567, 220 U.S.P.Q. 584 (Fed. Cir. 1984). In *Union Carbide*, the court found that the first determination was whether “the reference is within

the field of the inventor's endeavor." If it is not, one must proceed to the second step "to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved." In regard to the second step, *Bott v. Fourstar Corp.*, 218 U.S.P.Q. 358 (E.D. Mich. 1983) determined that "analogous art is that field of art which a person of ordinary skill in the art would have been apt to refer in attempting to solve the problem solved by a proposed invention." "To be relevant the area of art should be where one of ordinary skill in the art would be aware that similar problems exist." *Id.*

Deficiencies of the Rejections of Amended Independent Claims 10, 20, and 27

Amended independent claim 10 recites, *inter alia*, "a submersible actuator, comprising: a first housing having an electric motor disposed in a first pressurized fluid, wherein the first pressurized fluid is a pressurized lubricating liquid; and a second housing having a control circuit disposed in a second pressurized fluid, wherein the second pressurized fluid is nitrogen." (Emphasis added.) Similarly, amended independent claim 20 recites, *inter alia*, "pneumatically pressurizing a control circuit in a first enclosure portion of a submersible actuator, wherein pneumatically pressurizing comprises inertly pressurizing the control circuit in the first enclosure portion with pressurized nitrogen." (Emphasis added.) In addition, independent claim 27 recites, *inter alia*, "a submersible actuator, comprising: ... a second container filled with nitrogen ... and a control circuit disposed in the second container." (Emphasis added.) As such, each of the independent claims generally recites a submersible actuator including a housing (or "enclosure" or "container") having a control circuit disposed in pressurized nitrogen.

None of the cited references, whether alone or in hypothetical combination, teach or suggest a submersible actuator including a housing (or "enclosure" or "container") having a control circuit disposed in pressurized nitrogen, as generally recited by amended independent claims 10, 20, and 27. Indeed, the Examiner acknowledged that "Johansen et al. fail to disclose that the control circuit is disposed in a second pressurized fluid, wherein the second pressurized fluid is an inert gas." *See* Final Office Action, page 3. Rather, the Examiner relied upon Birtcher

as disclosing “the use of nitrogen in an electronics box in order to provide an inert atmosphere.” *See id.*, page 4. However, Applicants note that Birtcher merely discloses the use of directing nitrogen into an electronics box of a semiconductor fabrication apparatus. *See, e.g.*, Birtcher, paragraph [0081]. As such, Birtcher clearly does not disclose a submersible actuator including a housing (or “enclosure” or “container”) having a control circuit disposed in pressurized nitrogen, as generally recited by amended independent claims 10, 20, and 27.

Rather, the Examiner contended that it “would have further been obvious to one of ordinary skill in the art at the time the invention was made to utilize an inert atmosphere in the electronics area as taught by Birtcher et al. for the atmosphere of the second housing of Johansen et al. in combination with Dalton, Jr. and Wallace, in order to provide an explosion proof atmosphere in the second housing as taught by Birtcher et al. and to further provide an atmosphere that will not damage the electronic circuitry.” *See* Final Office Action, page 4. However, Applicants contend that it would not at all have been obvious to combine the process of inserting low pressure nitrogen into the electronics box of the semiconductor fabrication apparatus of Johansen with the submersible actuator of the present claims. For example, the generally atmospheric environment of the semiconductor fabrication apparatus of Johansen is drastically different than an underwater environment (e.g., submersible) as recited in the claims. An underwater environment, such as a subsea environment, may be particularly detrimental to sensitive electronics, and is also at a significant pressure. Thus, pressurized nitrogen in an underwater environment would provide the additional benefit of counterbalancing the pressure of the water. In addition, because of the remote nature of the submersible actuator, directing nitrogen into a subsea housing in the manner described in Birtcher would not be feasible.

Further, Applicants contend that Birtcher is non-analogous art in view of the *Union Carbide* test set forth above. With regard to the first step in the *Union Carbide* two-step test, Applicants reiterate that the present application is directed to a submersible actuator. In contrast, Birtcher is directed to a semiconductor fabrication apparatus. Accordingly, Birtcher is certainly

not within the field of the inventor's endeavor. In regard to the second step of the *Union Carbide* test, Applicants assert that the disclosure of Birtcher is not reasonably pertinent to the particular problem the inventor was involved (i.e., pressurizing a container filled with nitrogen in a corrosive, high-pressure underwater environment). Indeed, Birtcher is merely directed toward filling an electronics box with relatively low-pressure nitrogen. Thus, Applicants contend that Birtcher is non-analogous art, and that the Examiner improperly cited Birtcher.

For at least these reasons, among others, Applicants contend that none of the cited references, whether alone or in hypothetical combination, teach or suggest a submersible actuator including a housing (or "enclosure" or "container") having a control circuit disposed in pressurized nitrogen, as generally recited by amended independent claims 10, 20, and 27. As such, Applicants respectfully request withdrawal of the rejections of amended independent claims 10, 20, and 27 and the claims depending therefrom.

Deficiencies of the Rejections of Dependent Claims 14, 16, and 31

Dependent claim 14 recites, *inter alia*, "the control circuit is configured to compare a value of a control signal with an average of a predetermined number of previous control signals." In addition, dependent claims 16 and 31 both recite, *inter alia*, "the control circuit is configured to control the electric motor based on feedback indicative of a current absorbed by the electric motor."

None of the cited references, whether alone or in hypothetical combination, teach or suggest a control circuit configured to "compare a value of a control signal with an average of a predetermined number of previous control signals" or "control the electric motor based on feedback indicative of a current absorbed by the electric motor," as recited by dependent claims 14, 16, and 31. Indeed, Applicants note that the Examiner has cited no passages in any of the references that teach or suggest such control circuit features. Rather, in rejecting dependent claims 14 and 16 in the Final Office Action, the Examiner merely stated that the "control circuit

of Johansen et al. is capable of performing the functional limitations of claim [sic]. Further the control circuit as disclosed by Johansen et al. is capable of performing logic operations which would further lend to the capability of the control circuit to performing the intended use.” See Final Office Action, page 5. As such, it appears the Examiner has merely asserted that because Johansen discloses a control circuit, the control circuit is necessarily configured to perform the actions recited by dependent claims 14, 16, and 31.

However, Applicants contend that this assertion is clearly insufficient to support a *prima facie* case of obviousness. More specifically, Applicants note that it has been held that an “adapted to” clause may be a positive limitation where it “states a condition that is material to patentability.” See *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005); see also M.P.E.P. § 2111.04. With respect to the features of the control circuit recited by dependent claims 14, 16, and 31, Applicants respectfully submit that the features are clearly material to the patentability of those claims, and therefore should be construed as positive limitations. As such, simply asserting that the control circuit of Johansen could be configured to perform the actions recited by dependent claims 14, 16, and 31 does not support the assertion that the control circuit of Johansen is configured to perform the actions. Therefore, Applicants contend that the Examiner has not met the burden required for a *prima facie* case of obviousness of dependent claims 14, 16, and 31.

For at least these reasons, among others, Applicants contend that none of the cited references, whether alone or in hypothetical combination, teach or suggest a control circuit configured to “compare a value of a control signal with an average of a predetermined number of previous control signals” or “control the electric motor based on feedback indicative of a current absorbed by the electric motor,” as recited by dependent claims 14, 16, and 31. As such, Applicants respectfully request withdrawal of the rejections of dependent claims 14, 16, and 31.

Conclusion

Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes that certain amendments would expedite allowance of the present application or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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